

METHOD AND APPARATUS FOR
DYNAMIC ALLOCATION OF SCALABLE SELECTIVE ENHANCED FINE
GRANULAR ENCODED IMAGES

RELATED APPLICATIONS

[0001] This application is related to commonly assigned:

U.S. Patent Application Serial Number 60/217,827, entitled "System And Method For Fine Granular Scalable Video With Selective Quality Enhancement, " filed on July 12, 2000; and

U.S. Patent Application Serial Number 09/887,747, entitled "Method And Apparatus For Improved Efficiency In Transmission Of Fine Granular Scalable Selective Enhanced Images," filed on June 22, 2001.

FIELD OF THE INVENTION

[0002] This invention relates generally to video encoding and more specifically to dynamically allocating selective enhancement Fine Granular Scalable encoded video data.

BACKGROUND OF THE INVENTION

[0003] The MPEG-4 Fine-Granular Scalability (FGS) framework allows for different levels of compression for different parts of a video image by using an adaptive quantization technique, referred to as Selective Enhancement. Selective Enhancement of FGS encoded video images is more fully disclosed in U.S. Patent Application Serial

Number 60/217,827, entitled, "System And Method For Fine Granular Scalable Video With Selective Quality Enhancement," filed on July 12, 2000. An improvement to the transmission efficiency of selectively enhanced FGS video signals is more fully disclosed in U.S. Patent Application, Serial number 09/881,747, entitled "Method And Apparatus For Improved Efficiency In Transmission Of Fine Granular Scalable Selective Enhanced Images, filed on June 22, 2001.

[0004] Utilizing selective enhancement designated areas of an FGS encoded video image may be transmitted to achieve a higher quality level than non-designated areas of the image. As disclosed in the referred to patents applications, a higher quality level or higher resolution of a transmitted image may be achieved by "shifting" specific or designated areas or regions of FGS encoded image elements to a higher transmission priority level. The selectively enhanced images are thus transmitted out of their normal sequence. The specific or designated areas or regions may be associated with a specific pixel, pixel arrays or sets or pixel arrays, referred to herein as macroblocks. An indication of enhancement factor or shift factor is also associated with each shifted FGS encoded image elements, i.e., macroblocks.

[0005] One disadvantage of the current selective enhancement method is that the shifting factors and the area or areas selected for selected enhancement are essentially pre-determined and allocated during the FGS encoding processing. Such selection of enhanced areas may be preformed by an automatic system based on some predetermined rules. For example, data blocks associated with the slowest movement within the image may be selected for enhancement. Alternatively, faces within the image may be more enhanced than the background. However, these rule-based automatic systems often fail